

Aging and memory

Psychology 248

Prof. Benjamin

Recall vs. recognition

Study:

A body of water – pond

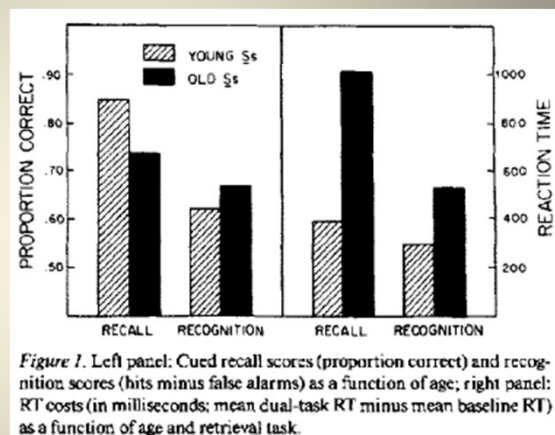
Recall:

A body of water – ?

Recognition:

pond?

house?



Craik & McDowd (1987)

Recall is impaired more in the elderly than recognition

Control over what is recalled

Study words and point values:

house 1
elephant 10
chair 3
lamp 7
drink 9
binder 5
bird 2
sneaker 12
tile 6
pencil 8
paper 11
card 4

$$\text{Selectivity} = \frac{\text{total points} - \text{chance points}}{\text{ideal points} - \text{chance points}}$$

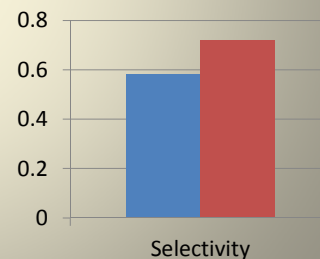
Recall output:

sneaker (12)
pencil (8)
elephant (10)
drink (9)

Recall score = 4

Selectivity =

$$\frac{39 - (6.5 * 4)}{42 - (6.5 * 4)} = .81$$



Older adults are more selective about what they learn and recall

Castel, Benjamin, Craik, & Watkins (2002)

“Learning” vs. “memory” tests

Table 1
Excerpts From Each Instruction Set in Experiments 1 and 2

Memory-emphasis instructions ^a	Memory-neutral instructions
Learning phase	
“In this experiment, we are interested in how good your <i>memory</i> is”	“In this experiment, we are interested in your ability to learn facts”
“If the word true appears on the screen, you will need to <i>remember</i> that the sentence is true; if the word false appears on the screen, you will need to <i>remember</i> that the sentence is false...”	“If the sentence is true, then the word true will appear on the screen; if the sentence is false, then the word false will appear on the screen...”
“You will be tested on your <i>memory</i> of this information in phase two”	“You will be tested on this information in phase two”
Test phase	
“You need to <i>remember</i> what followed each sentence by: Pressing “T” if you <i>remember</i> that the word true followed the sentence; Pressing “F” if you <i>remember</i> that the word false followed the sentence...”	“You need to respond to each sentence by: Pressing “T” if the sentence was true. Pressing “F” if the sentence was false...”

^a Words are italicized here for ease of interpretation. They were not deliberately emphasized during the actual experiments.

Rahhal, Hasher, & Colcombe (2001)

Performance is only impaired in the older adults when “memory” is emphasized in the instructions.

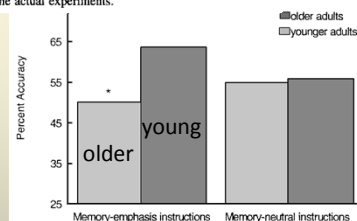


Figure 1. Memory accuracy in Experiment 1 for true and false items as a function of age and instruction type. Asterisk denotes a significant difference ($p < .001$) in accuracy between older and younger adults. Because participants had four options at test, chance responding = 25%.

Schemas help recall in older adults

Study objects and prices:

- butter: \$2.99
- soup: \$14.39

prices are either realistic or unrealistic

Test: recall of price given object

Recall is only impaired in the older adults when the prices are unrealistic.

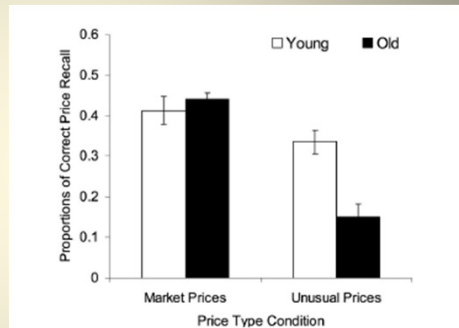


Figure 1. The proportions of correct price recall for the market value and unusual priced items by younger and older adults in Experiment 1. Error bars represent standard error of the mean.

Castel (2005)

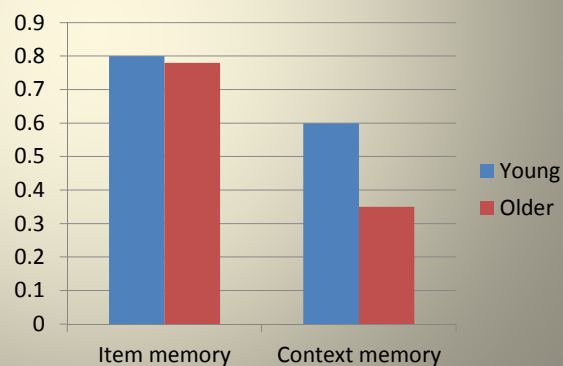
Aging and memory for context



*Memory is more impaired for **context** than **items** in the older adults.*

Test for items and for context:

1. Did you study: *wash*
2. Was it on the left or the right?



Attention, aging and context

Learn:

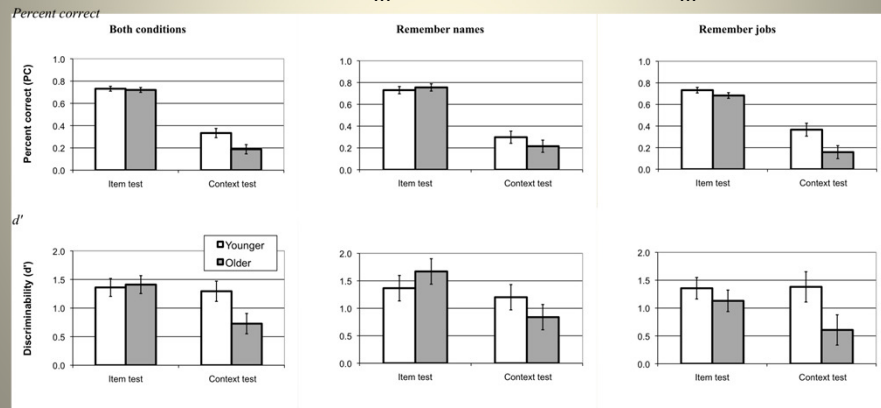
Jones is a physician.
Harrick is a lawyer.

Test:

1. Did you see JONES?
 2. What job was with JONES?
- lawyer
physician
...

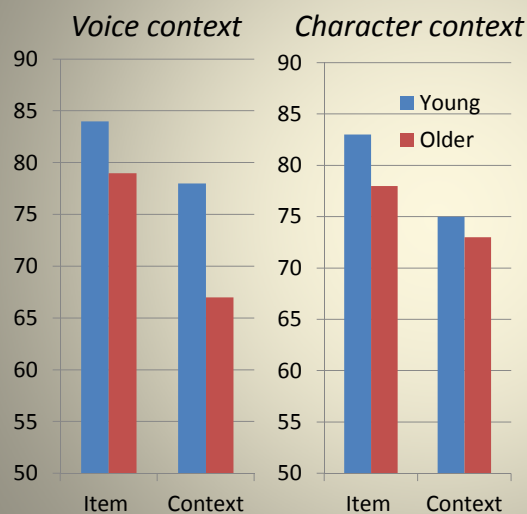
Test:

1. Did you see PHYSICIAN?
 2. What job was with PHYSICIAN?
- Jones
Harrick
...



Benjamin, Diaz, Matzen, & Johnson (2011)

Different types of context



Rahhal, May, & Hasher (2002)

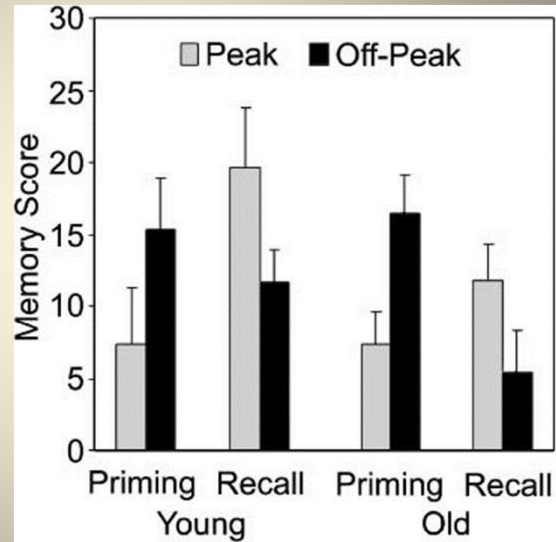
- Two speakers: John and Mary
- One is "evil" and the other, "good"
- They are describing people that are also evil or good.
- Memory test: After recognizing the person (item), remember the voice (John or Mary) or the character (evil or good).

Deficit is context memory is not evident when the context is important to older adults.

Implicit memory, time of day, and aging

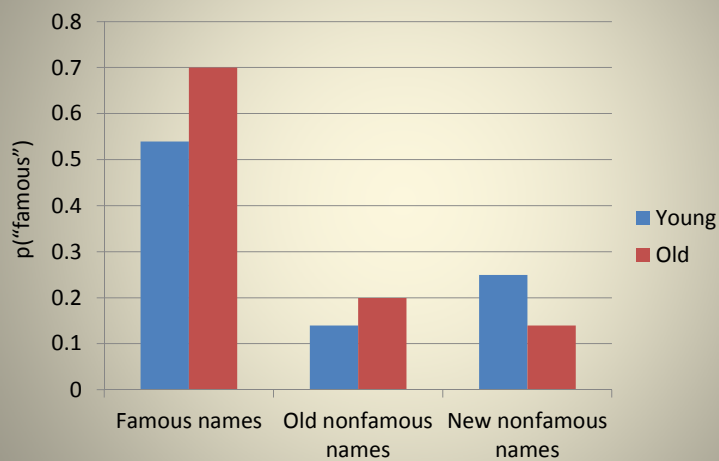
Implicit and explicit
stem completion:

LAT __ (later)



May, Hasher, & Foong (2006)

Aging and false fame



Dywan & Jacoby (1990)

Next class:
Metamemory